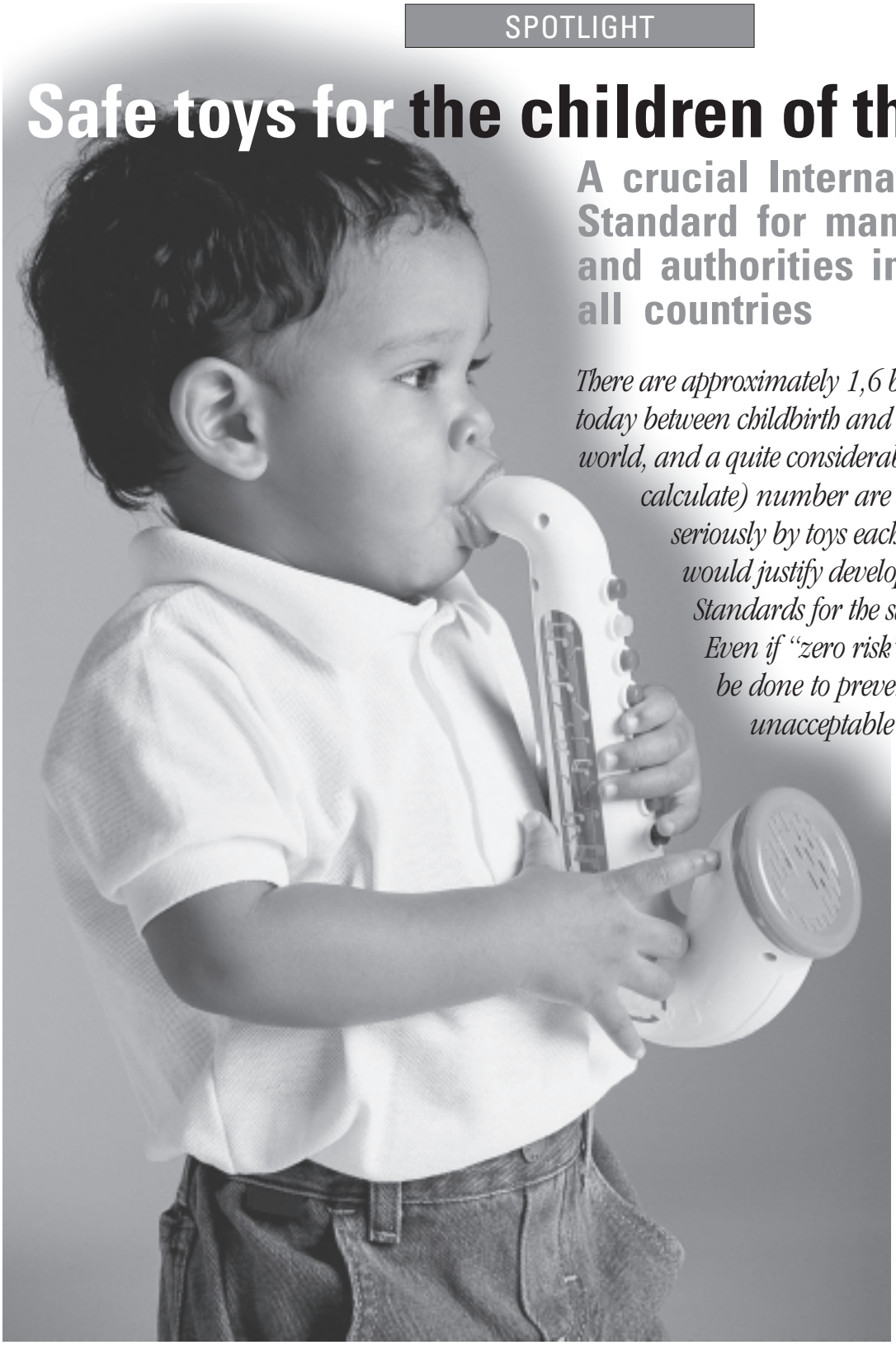
Safe toys for the children of the world

A crucial International Standard for manufacturers and authorities in all countries



There are approximately 1,6 billion children alive today between childbirth and the age of 14 in the world, and a quite considerable (but difficult to calculate) number are injured more or less seriously by toys each year; this, just in itself, would justify developing International Standards for the safety of toys.

Even if "zero risk" does not exist, a lot can be done to prevent the unnecessary and unacceptable accidents in which children are injured by toys. Conscientious toy manufacturers are anxious to ensure that their products are safe. Good International Standards, explicit and clear, widely diffused and known to industry globally, and properly implemented by toy manufacturers, are effective and important tools in the pursuit of this goal.

The safety of toys

By Aage Hillersborg, Senior Manager, Product Integrity, LEGO Company and Chairman, ISO/TC 181, *Safety of toys*

It is virtually impossible to get to reliable figures for the number of children that are injured while playing with toys of poor quality. In Denmark, however, a small country with about 5 million inhabitants, the number of accidents reported to the National Institute of Public Health in 1997 came up to more than 4000. These accidents involved children of up to 9 years of age. If we compare this figure with the number of children in the world – and take into account the fact that not all accidents are recorded – the conclusion is all too obvious: the number of accidents caused by toys injuring children under the age of 14 totals hundreds of thousands. Though luckily most accidents do not have serious consequences, the sad fact is, nevertheless, that every year numbers of children are disabled or lose their lives because of dangerous toys.

Realistically speaking, while it is impossible to avoid all accidents, it is certainly possible to prevent most of them, and con-

Simple but safe – the test methods described in ISO 8124 are designed to ensure that a toy is safe, since consideration was given in its requirements not only for "normal uses" of the toy but also for those for which it was not intended.

scientious toy manufacturers are anxious do what they can to ensure that their products are safe.

The new International Standard ISO 8124-1 *Safety of toys* – Part 1*: Safety aspects of mechanical and physical properties* is now at their disposal; there is not a shadow of doubt that it will be carefully studied by all the stakeholders involved, all over the world, namely, consumers, importers, and law enforcement agencies.

Availability of this standard is also good news for all children and their parents.

In 1994 and 1997 respectively, International Standards ISO 8124-2, *Safety of toys* – Part 2: *Flammability* and ISO 8124-3, *Safety of toys* – Part 3: *Migration of certain elements* were published. With these two standards, and this new Part 1, there is no longer any excuse for producing toys which expose children to any known risk. If all manufacturers now comply with the provisions of the three toy safety standards, the number of accidents is going to drop considerably.

Taking into account both use and misuse

The new Part 1 of ISO 8124, on mechanical and physical properties, applies to almost all types of toys. This means, in short, that it applies to any product designed for use in play by children under 14 years of age. The standard specifies a number of requirements for the toy. It not only refers to the normal use of toys but, as far as possible, also makes allowance for the fact that children often put toys to a different use from that for which it was designed. This standard also aims, therefore, to prevent accidents which occur due to foreseeable "misuse" of the toy.

Consequently, a considerable number of aspects have to be taken into account, and the result is a voluminous standard of almost a hundred pages. The requirements specify acceptable criteria for structural characteristics of toys, such as shape, size, contour, spacing (e.g. rattles, small parts, sharp points and edges, hinge-line clearance) as well as acceptable criteria for properties peculiar to certain categories of toy (e.g. maximum kinetic energy values for non-resilient-tipped projectiles, minimum tip angles for certain ride-on toys).

ISO 8124-1 also specifies requirements and test methods for toys intended for use by children in various age groups, from birth to age

The boundless market for toys

The annual turnover for toys over a year (1998) amounted to almost USD 68 billions, an amount which clearly proves that the market for toys is huge.

The ICTI statistics show that in 1997, every child in the world was given toys to an average amount of approximately USD 35, but that differences from continent to continent are remarkable: USD 341 were spent on toys for every child in North America, in Europe this amount was USD 144, in Asia USD 14, and in Africa USD 1,5.

Source: the International Council of Toy Industries (ICTI), 1998.

North America: USD 341

Europe: USD 144

Asia: USD 14

Africa: USD 1,5

14. The requirements vary according to the age group for which the particular toy is intended. The requirements for a particular age group reflect the nature of the hazards and the expected mental and/or physical abilities of the child to cope with them.

Furthermore, the standard requires that appropriate warnings and/or instructions for use be given on certain toys or their packaging. Due to the language problems that may occur in different countries, the exact wording of these warnings and instructions is not specified but examples are included.

What's not in the standard

A number of products are not covered by the standard because they cannot be considered to be toys – even though they are often used as such by children under 14 years old. Examples of such "toys" are bicycles of a certain size and intended for travel on the public highway. These bicycles are regarded as means of transport and not as toys; only *toy bicycles* are covered by the standard. A similar distinction is made between real musical instruments, which are not covered, and toy musical instruments which do figure within the scope.

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About the author

Mr. Aage S. Hillersborg has been working for the LEGO Company for eight years. Currently his field of responsibility is product safety and product integrity matters for all LEGO Company products including play materials, media products, clothing, park entertainment etc. Before joining the LEGO Company, Mr. Hillersborg was working both as a consultant within plastics and environmental technology and management within the machinery industry.

Mr. Hillersborg is active in many areas of standardization in his capacity as chairman for ISO/TC 181 and CEN/TC 52, both committees on toy safety, as well as in ISO/TC 207 on environmental management and in CEN/TC 261 on packaging.

Mr. Hillersborg was elected spokesman for the Safety, Environment and Technology Committee of the Association of Toy Industries of Europe, and represents the Danish Toy Trade Association in the International Council of Toy Manufacturers.

The same applies to sports equipment, e.g. darts with metallic tips, bows for archery with an overall length of more than 1,20 m, and compressed air- and gas-operated guns and pistols that are not considered "toys" and are therefore outside the scope of the standard.

Other examples of exclusions are playground equipment intended for installation in public playgrounds, puzzles with more than 500 pieces, and fashion jewellery for children.

The complex task of compiling data

Some of the requirements of the standard have given rise to more debate than others, as, for example, the permissible length of a cord. Toys with cords present a risk because children can be strangled by cords, that may form a noose around a child's neck. Accident data, even worldwide, on cases where children have been injured or been in danger because of cords are scarce. The information available indicates that both long cords and very short cords, even down to a few centimetres, have caused accidents.

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The discussions in ISO/TC 181, therefore, ended up in two proposals for a maximum cord length of either 300 mm or 220 mm: the majority voted for having a maximum cord length of 220 mm in the International Standard. Although it is impossible to say for a fact that this particular length is the optimum solution, this length has to be regarded as a safe choice. Some countries argued that with such a short cord length – even though basically safe – parents might be tempted to attach an additional length of cord which then, indeed, would put the child at risk.

The debate on the maximum cord length serves as a good example of the complicated discussions pursued in ISO/TC 181. Many attempts were made to get hold of scientific data with a view to finding out what can be considered dangerous and what is safe, but it often turned out to be a very resource-demanding task to obtain a good basis for decision-making within a short time.

Lots of anthropometric data are available providing profound knowledge of the "dimensions" of human beings. This information,

however, is open to interpretation when it comes to determining the geometry of items that are just big enough for children to put into their mouths for them to get stuck in the backs of their mouth – with a risk of suffocation.

Furthermore, for each requirement or provision, a test method has to be provided. Examples of test methods include testing of toys intended for children under three in the small-parts cylinder described in the standard. This test equipment is basically a cylinder with a chamfered bottom, and its dimensions are such that, if the toy fits entirely in the cylinder, the child can choke on it.

The challenge of reaching consensus

ISO/TC 181, *Safety of toys,* is responsible for the International Standards on toy safety. The TC was established in 1980, and the secretariat and chairmanship have since then been undertaken by Denmark.

Some may argue that three standards do not represent an impressive production over a period of 20 years. The explanation is that the activities of the TC were at a standstill for almost a decade because, after lengthy discussions concerning the distribution of tasks between CEN and ISO, it was decided to await publication of the European standards on safety of toys (the EN 71-series). These standards were drawn up as a part of the "European Directive on the Safety of Toys", which was adopted in accordance with the New Approach.

When activity was resumed in the 1990s, work on ISO 8124-1 was based on European Standard EN 71-1, American standard ASTM F963 and other national standards. Being the first International Standard for the mechanical and physical properties of toys, ISO 8124-1 has the best possible prerequisites for achieving global use and recognition.

The working environment in ISO/TC 181 has been characterized by the considerable and combined efforts of many interested parties. In the process, many differing views have come to light, but the delegates' fundamentally constructive attitudes have made it possible to reach consensus. This is not least due to the fact that the TC members have been committed and have worked hard, both at meetings and between them.

Given the large number of participating countries (27), it would be too much here to mention all members of ISO/TC 181. The involvement in the work shown by the observer countries and organizations with liaison status to ISO/TC 181 is another sign of the considerable interest in the standard which was highlighted yet further in connection with the enquiry before the preparation of the final draft International Standard. More than 50 pages of comments were received, which once more underlines the remarkable commitment.

With regard to one particular point, namely, noise emitted from toys, where present scientific knowledge of the long-term damage to children's hearing is inadequate, there are already efforts to improve ISO 8124-1. To this end, a working group under ISO/TC 181 has been established with a view to studying this specific aspect of work.

Vital to apply the International Standards now

The international community now has at its disposal a standard which authorities throughout the world should be encouraged to use in their national legislations on toys.

Today, there exist many national standards for the safety of toys. In most instances, these national standards are not as comprehensive as the three standards in the ISO 8124 series. From a global point of view, the new standard can increase safety and, at the same time, the industry will see a reduction of the costs of testing and approval – an ultimate benefit for consumers.

The corresponding European standards (the EN 71-series) are harmonized standards linked to the "European Toy Directive," and are thus referred to in national legislation of the EU member states. However, even though EN 71-1 has formed a significant basis for the preparation of ISO 8124-1, the two standards differ on certain points.

In the long term, it is in the interest of manufacturers, authorities and, not least, consumers that the same uniform and strict requirements apply in all countries for the safety of toys.

If we all agree that children shall not be exposed to the risk of being injured by toys, we can also agree that all children in the world have to be protected by the best safety requirements available. There is, therefore, every reason to encourage work and hope for a merging of the existing two good standards into one single global standard as soon as possible, to be used by manufacturers and authorities all over the world for preventing accidents caused by toys. □

Developing the toy safety standards has met with broad international support.